Seasonality of dissolved element fluxes in the Amazon River Endmember

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The chemical composition of the Amazon river and its main tributaries are of interest as a major source of dissolved and particulate substances to the Atlantic ocean.

In order to assess the variability and seasonality of the Amazon river major and trace element fluxes, including the REE, a monthly time series covering at least two whole hydrological cycles was obtained. The Amazon mainstream at Obidos is formed by the Solimões and Madeira rivers, both draining the Andean part of the basin, and the Rio Negro, which drains the inundated forest of the Guyana Shield and Central Amazon. Sampling location are situated at the gauging stations of the tributary confluences with the mainstream Amazon river and at Obidos station which is located upstream of the marine influence and represents 90% of the total discharge of the Amazon river into the Atlantic Ocean. The two year time series show that elements vary seasonally with discharge in tributarys and indicate hydrologically dominated control processes in the Amazon River. We propose revised annual dissolved element fluxes to the surface Atlantic Ocean, based on an integration of the seasonal data (figure 1).

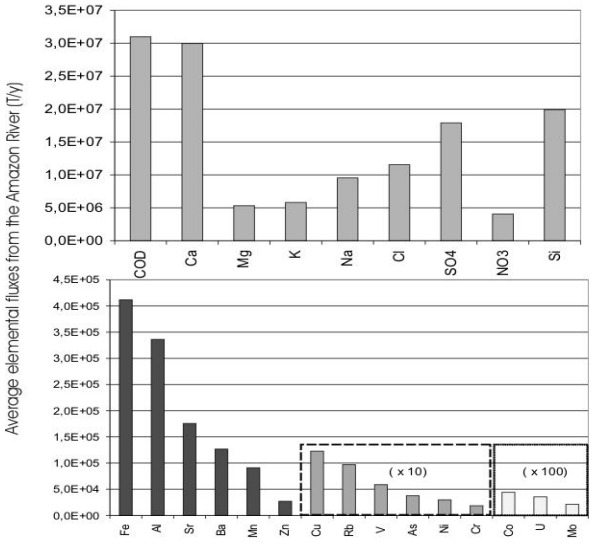

Figure 1: Average annual fluxes (T/y with SD of 15%) for selected elements from the Amazon River to the Atlantic Ocean.